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Dacatria templaris gen. n., sp. n.
A new myrmicine ant from the Republic of Korea
(Hymenoptera, Formicidae)

By

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With 6 figures

Abstract

Dacatria templaris is a new eastern palearctic attine-like ant. For its likeness to the members of the tribe Attini it is compared to the other Asian ant *Proatta butteli* FOREL. At first sight *Dacatria* and *Proatta* seem quite different, yet there are a few curious similarities between them, especially the presence of slightly clavate hairs on the distal segments of the gaster, and the absence of clypeal setae. These and other resemblances suggest that *Dacatria* and *Proatta* are more related to each other than to any remaining myrmicine genus. For this reason they can be kept together in the tribe Proattini FOREL. The differences from the tribe Pheidolini, where *Proatta* was recently included, are discussed. *Dacatria* and *Proatta* are kept out of the Attini because of their geographical distribution. Also, they do not grow fungus for food, which is an apomorphy of the Attini.

Introduction

During July 1988 Mr. STEFANO DACATRA collected many ground-dwelling ants in the Republic of Korea using pitfall traps with sugar baits. These ants mostly belonged to genera and species widespread in the eastern Palaearctic Region. Yet I found among them a strange specimen which at first glance seemed a slender attine. I realized it might be related to *Proatta butteli* FOREL, 1912 from its resemblance to the fungus-growing ants. But the new ant differs from *Proatta* in many features and it may be considered as belonging to a closely related new genus. Here I give the first description of *Dacatria templaris* gen. n. sp. n., and for comparison a short analysis of *Proatta butteli* FOREL.

Standard measurements are as in BOLTON (1983) and were taken by a Wild M5 stereomicroscope with an ocular graticule.

For the sculpture I follow the nomenclature of HARRIS (1979).

Dacatria gen. n. (Figs 1–3)

Diagnosis of worker:

Terrestrial (?) myrmicine ant with the following characters:

1. Palp formula 3, 2 (counted in situ).
2. Mandibles triangular, five-toothed. The teeth increase in size from the basalmost to the apical. First, second and third tooth (counted from the basal) are separated from one another by a diastema (Fig. 3).

3. Clypeus raised in the middle; its lateral portions are shaped as blunt crests which surround the antennal insertions in front, delimiting two somewhat deep sockets. The crests are the continuations of the diverging edges of the flat median clypeal portion. Anteriorly the clypeus appears obliquely truncate, and it has a sharp and hardly prominent convex edge which is obtusely angled in the middle. Posteriorly the clypeus is narrow and is deeply inserted between the frontal lobes. Clypeal setae absent.
4. Frontal triangle poorly defined.
5. Frontal lobes surround the posterior part of the clypeus; they are strongly raised in comparison with it. Their borders are slightly converging in front.
6. Frontal carinae absent.
7. Head with a shallow central furrow which is deeper and wider in its centre; posteriorly it gets narrower joining the occiput without a break. The latter appears almost truncate in side view. The furrow is delimited by two faint longitudinal prominences which posteriorly diverge nearly at right angles.
8. Antennae 12-segmented, with a poorly defined club of three. The scape is robust, and approximately of the same thickness throughout its length; it is clearly bent and barely thinner near the base.
9. Eyes small and quite convex; they are placed a little in front of the midlength of the sides of the head. No more than five ommatidia in their longest row.
10. Occiput with a low backwards projecting nuchal border which surrounds the pronotal „neck".
11. Pronotum bears two rounded low tubercles in the middle.

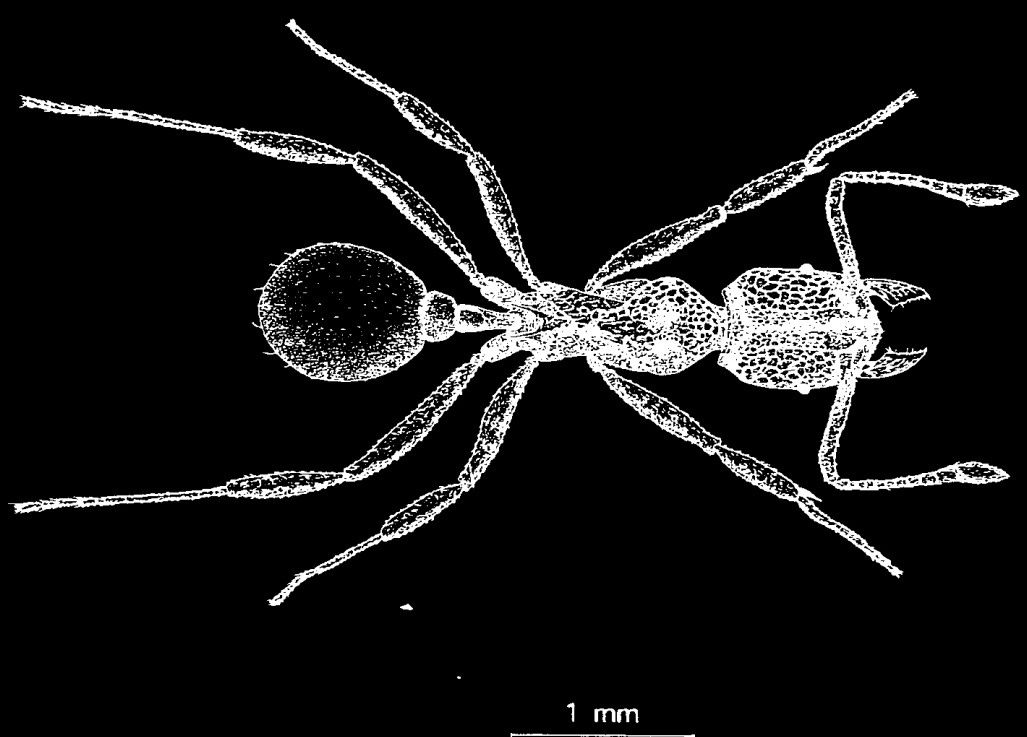


Fig. 1.
Dacatria templaris gen. n., sp. n., holotype worker

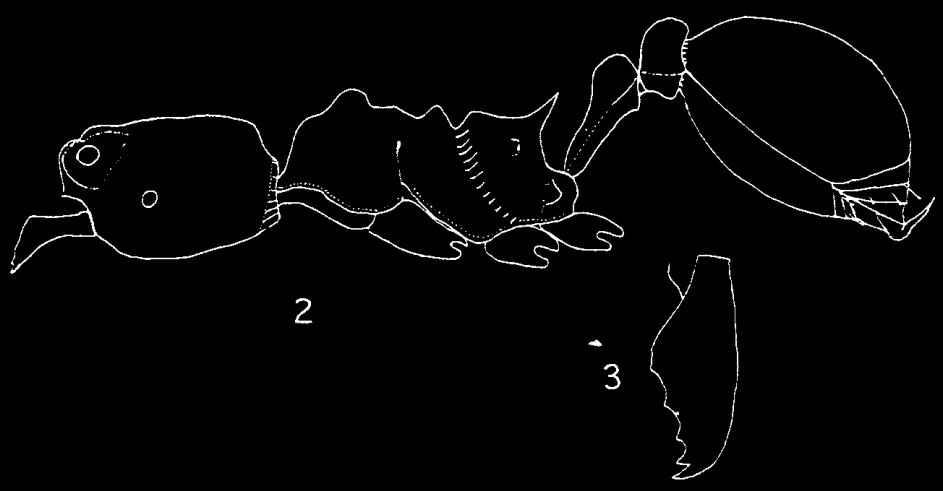
12. Mesonotum with a smaller raised tubercle posteriorly.
13. Metapleural lobes present.
14. Metanotal groove well defined and deep in profile because of the presence of the mesonotal tubercle and of the raised anteriormost portion of the basal face of the propodeum.
15. Propodeum with two backward directed, sharp, diverging and a little apically upturned spines which are about as long as the distance between their tips.
16. Propodeal spiracles small and nearly circular. Their openings are directed backwards from two low and blunt prominences of the propodeal sides.
17. Petiole with an elongate peduncle and a nearly flat-domed low node. The spiracles are circular and very small, they are placed a little behind the midlength of the peduncle. Postpetiole higher and wider than the petiolar node. It abruptly falls on the basis of the gaster.
18. Tibial spurs absent from second and third pairs of legs.
19. Sting present and simple.
20. Hairs absent from the dorsum of the body. Simple hairs are present at the apex of the gaster and on the mandibles. Slightly clavate hairs on third segment of the gaster. Pubescence short, scattered; it is visible only on the appendices and on the gaster.
21. Integument thick, body appearance dull, gaster shining. Sculpture coarse and irregular, prevalently rugose or rugulose on head and alitrunk. Colour brick red throughout the body; gaster, legs, mandibles and funiculi have a yellowish tinge.

Type species: *Dacatria templaris* sp. n.

Description

***Dacatria templaris* sp. n.** (Figs. 1–3)

Holotype worker: TL about 3.5 mm, HL 0.86, HW 0,68, SL 0.75, CI 79, SI 110, PW 0.54, AL 1.22, eye diameter 0.05 (0.07 × HW)



Figs. 2–3.
Dacatria templaris, profile and left mandible (simple hairs omitted)

The ground sculpture of head, alitrunk, petiole, postpetiole, and scapes is irregular and weak, it may be defined as granulate. Head and alitrunk are mostly areolate-rugose or areolate-rugulose. Rugulae on the head prevail in the central portion, and on the clypeus; rugae and rugulae absent from the antennal sockets and frontal area.

Mandibles irregularly costulate and striolate.

The frontal triangle is rather smooth with feeble longitudinal costulae which are present also in the wider portion of the cephalic furrow. Frontal lobes and clypeus mostly faintly rugulose. Antennal sockets granulate. Nuchal border with widely spaced irregular costae.

Scapes coarsely granulate with superimposed irregular anastomosing rugulae chiefly in their proximal half.

Pronotum areolate-rugose or rugulose. The mesonotum has a more longitudinal pattern of sculpture. Alitrunk irregularly rugose on the sides. Metanotal groove well developed and with short longitudinal costae. The space between the bases of the propodeal spines is transversely costate. Descending face of the propodeum laterally delimited by two low carinae formed by the continuation of the inferior edges of the spines. The portion between the carinae looks nearly smooth with scattered faint rugulae only.

Petiole areolate-rugulose above, except the top of the node. Laterally there is a quite evident longitudinal carina separating the tergite from the sternite. The postpetiole does not have rugae or rugulae.

Coxae sculptured as the alitrunk. Femora and tibiae mostly granulate or reticulate and quite faintly areolate-rugulose.

The surface of the gaster is smooth and almost unsculptured, only poorly puncticulate; some very short costae occur near the base.

Hairs nearly absent; they occur only on the third and fourth gastral segments and on the mandibles. Suberect or subdecumbent slightly clavate setae form a single central transverse row of well spaced elements on the third tergite and sternite. Appressed or decumbent simple hairs occur towards the tip of the gaster, they are denser and longer around the anus.

Pubescence seem absent from the dorsum of head and alitrunk. It is very short, appressed and scattered on gaster, mandibles, and scapes; it is longer and/or more plentiful on the legs and on the anterior edge of the clypeus.

Female, male and larvae unknown.

Biology: no data are available. Mr. DACATRA told me he found this ant in a nearly subtropical environment with bamboo trees growing on the southern slope of mountains, at rather low altitude, (500 – 1000 m).

Material examined: a single (holotype) worker (in the Museo Civico di Storia Naturale di Milano): REPUBLIC of KOREA, Chiri San National Park, Hwaeomsa Temple, 20-VII-1988 S. DACATRA legit.

Proatta butteli FOREL, 1912 (Figs. 4–6)

Measurements (average of 10 syntype workers, with Standard Deviation): HL 0.75 (SD 0.029), HW 0.59 (0.024), CI 78 (2.79), SL 0.66 (0.024), SI 113 (3.61), PW 0.45 (0.019), AL 0.94 (0.036), maximum eye diameter 0.08 (0.006)

For general shape of the body see figures and FOREL's original description.

Proatta differs from *Dacatria* in many features as one can see from the drawings; yet there are some interesting resemblances which could be of phylogenetic significance. The minor resemblances to *Dacatria* are as follows: clypeus deeply inserted posteriorly between the raised frontal lobes and with lateral crests, originating from the edges of the median clypeal portion, which delimit the antennal sockets in front. The crests are irregular in

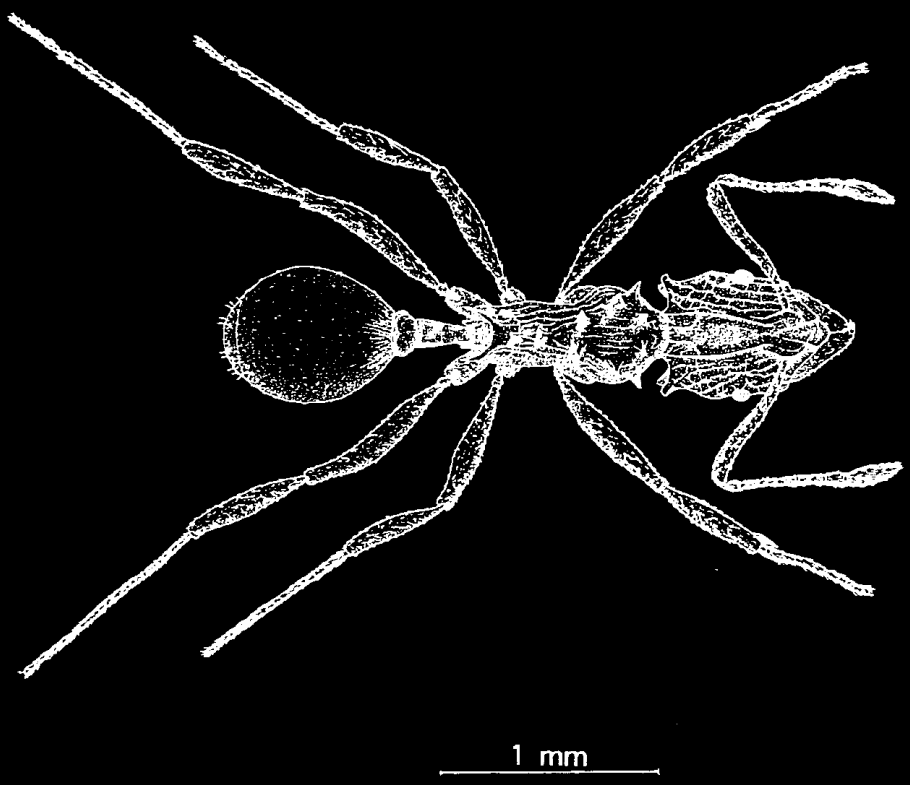
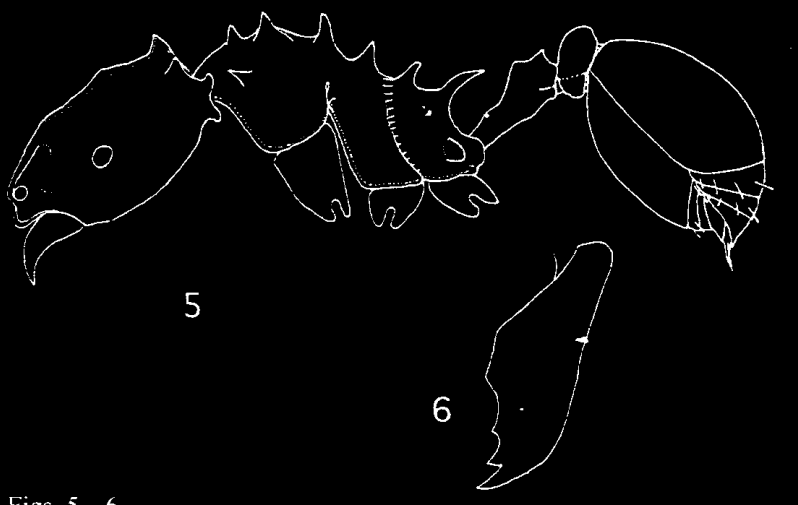


Fig. 4
Proatta butteli FOREL, syntype worker

Proatta, whereas they are almost evenly curved in *Dacatria*. Then, they are not so raised in front of the antennal sockets as in the latter. Anteriorly the clypeus of *Proatta* is high and protruding and differs from that of *Dacatria*. Antennae with 12 articles and a club of three. The arrangement of the teeth on the mandibles (four-toothed in *Proatta*) is similar (Figs. 3 and 6). Mesonotal tubercle present in the same position but different in structure.



Figs. 5–6
Proatta butteli, profile and left mandible (simple hairs omitted)

The following likenesses are more important: a) palp formula 3, 2; b) clypeal setae, and spurs of meso- and metatibiae absent; c) hairs absent from the dorsum of the body; d) clavate hairs present on second and third segments of the gaster in *Proatta*; these hairs are very similar in length, shape and distribution to those of *Dacatria*; e) simple hairs present around the tip of the gaster; pubescence as in *Dacatria*. The sculpture is less coarse than in *Dacatria* but fairly similar: mostly rugose or rugulose, but the ground sculpture is distinctly reticulate rather than unclearly and finely granulate; the sculpture on the legs looks exactly alike.

Discussion

Dacatria is quite different from any known ant genus. It shows some characters whose combination is peculiar.

The discovery of this interesting species supports the reinstatement of the tribe Proattini, which now would include two morphologically well defined monotypic genera resembling the South American Attini, yet zoogeographically and, at least in *Proatta*, biologically unrelated to them.

The tribe Proattini was established by FOREL (1916) for *Proatta* alone; WHEELER (1922) accepted this taxonomic innovation, and EMERY (1921 – 22) kept the Proattini as a subtribe of the Attini. WEBER (1958, 1982) did not consider *Proatta* an attine ant, above all because of its Asian origin. Later WHEELER & WHEELER (1985a) studied the larva of *Proatta*. They concluded that *Proatta* has a larva with some attine features and related to that of *Myrmicocrypta*, yet these characters are not sufficient to assign this species to the Attini. Then MOFFETT (1986) showed that *Proatta* is an insectivorous species; for this and geographical, but not morphological, reasons it must be excluded from the Attini. The systematic position of *Proatta* is still uncertain: WHEELER & WHEELER (1985b) retained the tribe Proattini for this genus; yet HÖLLDOBLER & WILSON (1990) consider it a member of the tribe Pheidolini.

Dacatria lacks some peculiar characters of tribes like Tetramoriini and Myrmicini. For instance *Dacatria* lacks an apical lamelliform appendage on the sting and the clypeus is not tetramoriine in shape; also it has no tibial spurs on second and third pairs of legs nor an anteroventral process of the petiole as in *Myrmica* and allied taxa. Besides these features *Dacatria* has a different body structure from members of those tribes.

The morphological similarity to the Attini is considerable, but the zoogeography suggest its exclusion from these. Major differences from the true fungus-growers are 12 segmented antennae, lack of squamiform, or other kind of dorsal body hairs; mandibles with shorter masticatory border.

There follows a character analysis for justifying the exclusion of *Dacatria* (and *Proatta*) even from the tribe Pheidolini (the numbers coincide with those reported in the diagnosis of the genus):

1. *Dacatria* and *Proatta* have the same palp formula: 3, 2. However the PF is quite variable in the Pheidolini.
2. The mandibular dentition is reduced and apomorphic, with unarmed spaces, and it is highly comparable to that of *Proatta*. In the Pheidolini the teeth are usually contiguous, and nearly always exceed four (*Proatta*) or five (*Dacatria*) in number.

3. Clypeal structure is peculiar to *Dacatria*. Its raised sides may be compared to those of some Myrmicini and Tetramoriini. Its deep insertion between the frontal lobes is shared with a few other genera as *Proatta*, and the pheidoline *Rogeria-Stenamma* group. Yet anteriorly the clypeus is different from that of other genera. Both *Dacatria* and *Proatta* lack setae on the clypeal margin, differing in that from the Pheidolini.
6, 7. The head structure of *Dacatria* is apomorphic by the presence of a central median furrow limited laterally by faint prominences.
9. Reduced eyes is a common apomorphic trait of ground-dwelling genera as *Stenamma* and *Rogeria*, but the eyes are more convex in *Dacatria*.
10. The nuchal border is autoapomorphic in *Dacatria*.
11. The pronotal tubercles are also apomorphic. There are no pheidoline ant genera with similarly located prominences. Many Pheidolini have developed or even spiniform pronotal humeri or anteriorly prominent mesonotum; such protuberances do not correspond in shape and position to those of *Dacatria*.
12. The mesonotal tubercle is shared with *Proatta* but it is not thin and bilobed as in the latter.
16. Propodeal spiracles are placed as in many other ants but they are borne on two faint prominences of the propodeal sides which commonly do not occur. Analogous structure may be found in some heavily sculptured groups.
17. The petiole has a node very different from that usual for *Pheidole* and related genera, where it is triangular or subtriangular in profile; it is clearly different also from that *Proatta* where it is autoapomorphic.
18. Tibial spurs lacking in *Proatta* and *Dacatria* and also in some pheidolines.
20. The absence of dorsal hairs and the presence of slightly clavate ones on the last gastral segments is a synapomorphy with the condition of *Proatta*. This is a major synapomorphic trait which clearly shows that *Dacatria* is closely related to *Proatta*. Hairs are abundant in nearly all of the Pheidolini, or, if rare, they are evenly distributed on the body. I do not know any pheidoline species with a condition near to that of *Dacatria* and *Proatta*.

At first sight *Dacatria* is morphologically an attine; but its geographical origin is far different from that of the true Attini. *Proatta* was the only known non-Neotropical attine-like ant. There are some strong similarities between *Dacatria* and *Proatta*: the pilosity and the pubescence, the sculpture, especially that of the legs, the palp formula, the mandibular dentition and the absence of tibial spurs from middle and hind legs. *Dacatria templaris* is an eastern Palaearctic species and *Proatta butteli* is an Oriental (tropical) one: anyhow, both are eastern Asian genera. *Proatta butteli* FOREL was described in 1912 on workers and males coming from Sumatra. It has a spiny body very similar to that of the attine *Mycocepurus*, while *Dacatria* strongly recalls *Myrmicocrypta* in shape.

I think *Dacatria* must be considered as a member of the tribe Proattini. Both *Dacatria* and *Proatta* are morphologically peculiar genera which are near to the tribes Pheidolini but they lack some distinctive features of these.

The combination of: a) lack of dorsal pilosity and pubescence; b) lack of clypeal setae; c) presence of similarly located slightly clavate hairs on the gaster; d) lack of middle and hind tibial spurs, e) spaced mandibular teeth, f) modified clypeal structure, g) heavy body sculpture, h) alitrunk with spines or tubercles, are characters which permit to exclude these forms from other myrmicine ant tribes. Further studies and the discovery of other related

species could allow a more correct placement of them; above all the relationship between Proattini and Attini deserves more research.

The correct placement of many genera and a clear definition of some important tribes within the Myrmicinae is greatly to be desired, yet this is not an easy task since many key taxa remain to be discovered.

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